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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

Project	Date	Author

SUBJECT—

TITLE

REPORT OF PINE BEETLE SURVEY
on the
OCHOCO NATIONAL FOREST AND ADJOINING PRIVATE LANDS

Season of 1943

by

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U. S. Department of Agriculture
Bureau of Entomology and Plant Quarantine
Forest Insect Investigations

REPORT OF PINE BEETLE SURVEY ON THE OCHOCO NATIONAL FOREST AND ADJOINING PRIVATE LANDS Season of 1943

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May, 1944

ABSTRACT

Basis

Data presented are from the thirteenth (1943) annual pine beetle survey.

Status of Infestation

The downward trend which began in 1939 continued unbroken through 1942, and the indications are that it will extend into 1943. Losses are now at the lowest level in the 12-year period for which records are available. Infestation is normal except on the Snow Mountain area where light epidemic losses are still prevalent.

Estimated Gross Losses for 1942

No. of trees	Volume M.b.m.	Board ft. per acre	Percent of stand
45,875	30,350	35	0.39

Recommendations

1. No direct control is necessary.

2. Sanitation-salvage logging in high hazard stands of the Snow Mountain area is proposed as a means of reducing losses on a long time basis.

REPORT OF PINE BEETLE SURVEY
on the
OCHOCO NATIONAL FOREST AND ADJOINING PRIVATE LANDS
Season of 1943

The thirteenth annual survey of forest insect conditions in the ponderosa pine stands within and adjacent to the Ochoco National Forest, as with previous surveys, was conducted through the cooperative effort of the Forest Service and the Bureau of Entomology and Plant Quarantine. Field work was carried out during the period from October 18 to November 5 by F. T. Houston and Jess Allison of the Supervisor's office, and R. L. Furniss and W. J. Buckhorn of the Portland Forest Insect Laboratory. Allison substituted for Buckhorn during the last four days of the survey.

Due to a shortage of manpower, the 1943 survey consisted almost wholly of a 100-percent cruise of insect losses on the 320-acre check plots. The number of these plots was reduced from twenty cruised in 1942 to fifteen in 1943. No reconnaissance survey was undertaken except for rather general observations incident to travel to and from the 320-acre plots.

The 1943 survey completed the 1942 loss record on the plots and provided partial data on the 1943 loss. Infestation trends were computed from these data and used, together with previous loss records, to make the 1942 loss estimates for the forest as a whole.

Estimates of the virgin stand acreage have again been revised from records of cutting furnished by the Forest Service.

Results of the 1943 Survey

During 1942 the infestation on the fifteen plots showed an average decrease of nine percent, marking the third successive season that losses have declined to levels lower than any previously recorded on the forest. Losses on the plots averaged 51 board feet per acre or .46 percent of the stand (see Table 1). The downward trend, however, was not uniform for increases were recorded on six of the plots. On three of these plots the increases undoubtedly were the result of insects breeding up in the abnormal number of windthrown trees that were blown down during the winters of 1940-41 and 1941-42. These plots and the windthrown losses on each are as follows: Stevenson - 15 trees containing 16,170 board feet; Black Mountain - 12 trees containing 11,470 board feet; and Paulina - 24 trees containing 38,790 board feet. The three plots on the Snow Mountain area (Soda Spring, Bixby, and Emigrant Butte) on which increases were recorded are widely distributed, indicating that a general upward trend of infestation occurred on this portion of the forest.

It is probable, in the light of past experience, that from 74 to 84 percent of the 1943 loss was perceptible at the time of the survey. On that basis it is estimated that total losses on the plots declined approximately 20 percent during 1943.

Dendroctonus brevicomis Lec. continued to be the most important insect attacking ponderosa pine. However, in a large portion of the trees it occurred in association with several other beetles, chiefly Dendroctonus monticolae Hopk., Melanophila sp., and Ips sp. Attacks were largely confined to single trees - only 11 percent of the 295 trees marked on the plots were in groups, the size of which ranged from two to four trees.

General Forest Conditions

Conditions improved on all except the Snow Mountain area. Elsewhere centers of light epidemic, present in the fringe type during 1941, declined to a normal status, and losses reached the lowest level in the 12-year period for which records are available. However, on the Snow Mountain area the infestation increased some 18 percent during 1942. The light epidemic infestation which was present on a portion of the area during 1941 now covers much of this body of timber. Forty-four percent of the total volume lost on the forest during 1942 was killed on the Snow Mountain area, which comprises 25 percent of the timbered acreage of the forest and has but 23 percent of the total timber volume. The estimated losses for 1942 are presented by areas and units in Table 2.

Infestation Trend

The downward trend of infestation, which began during 1939, continued unbroken through 1942 when losses on the check plots reached a new low point of but 0.46 percent of the stand killed. Incomplete records for 1943 indicate a probable further decrease of 20 percent. The trend of infestation on the plots during the past twelve years is graphically shown in Figure 1.

Recommendations

The continuing heavy losses of mature timber on the Snow Mountain area constitutes a severe drain upon stands already badly depleted by past epidemics. The large number of high risk trees still remaining in the stand indicates that heavy mortality will probably continue for some time to come. Should climatic conditions unfavorable to tree growth recur, it is quite likely that an aggressive epidemic would quickly develop. In order to reduce current depletion and to alleviate the probability of future excessive losses, it is again recommended that a program of sanitation-salvage logging be carried out on this area as soon as possible.

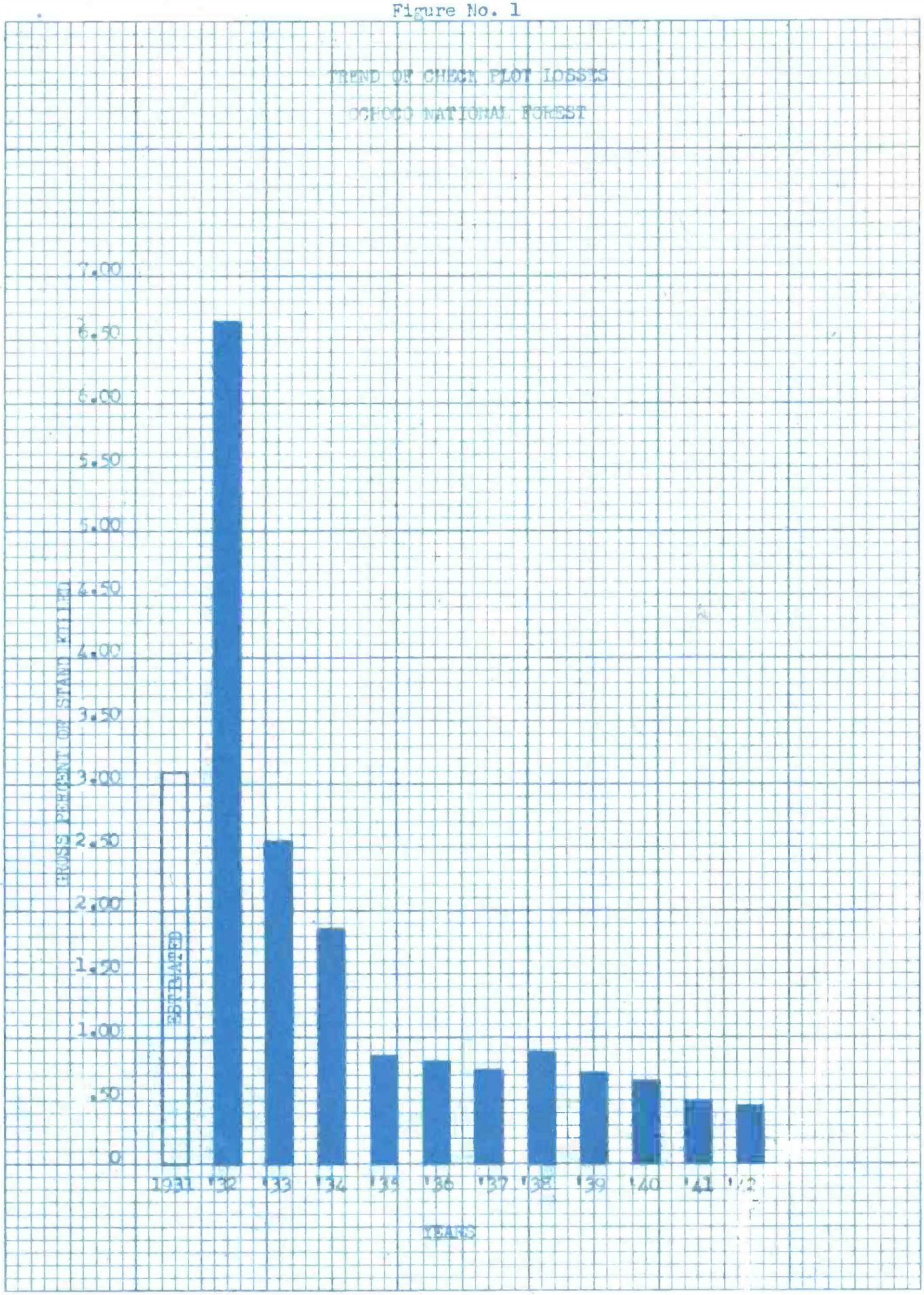
Table 1: Ponderosa pine killed by bark beetles on virgin sample plots - Ochoco National Forest and adjacent private lands.

Area and Unit	PLOT DESCRIPTION: Plot	Township	Range	Sec.	Timbered Acreage	Pine Volume B.m. (1/1/42)	ACTUAL 1942 LOSS: No. of Trees	Volume B.m.	B.m. per Acre	Percent of Stand	Ratio to 1941
MITCHELL											
Waterman	Waterman	10 S	23 E	35 E½	300	3,948,000	23	12,980	43	.33	.56
Antone	Spanish Peak	13 S	24 E	23 S½	310	4,353,000	16	10,560	34	.24	.46
	Total				610	8,301,000	39	23,540	39	.28	.51
PRINEVILLE											
Trout Creek	Stevenson	11 S	18 E	36 E½	320	4,486,000	10	8,790	27	.20	1.14
McKay Creek	Dry Creek	13 S	17 E	29 E½	320	2,734,000	20	18,190	57	.66	.81
Mill Creek	Wildcat	13 S	18 E	5 W½	320	3,433,000	12	8,020	25	.23	.47
	Total				960	10,653,000	42	35,000	36	.33	.74
SUMMIT PRAIRIE											
Big Summit	Black Mountain	14 S	22 E	9 W½	320	3,788,000	16	21,340	67	.56	4.70
Antler	Horse Prairie	15 S	21 E	29 E½	320	2,987,000	6	5,860	25	.27	.38
Paulina	Paulina Butte	14 S	23 E	32 E½	320	2,571,000	11	19,200	60	.75	1.17
Mud Spring	760 Spring	14 S	26 E	7 S½	320	5,551,000	8	9,470	30	.17	.82
Sunflower	Sunflower	16 S	26 E	33 W½	304	3,180,000	10	11,900	39	.38	.95
	Total				1584	18,077,000	51	67,770	43	.38	1.10
MAURY MOUNTAIN											
Maury	Double Cabin	18 S	20 E	10 N½	320	3,092,000	27	14,520	45	.48	.60
SNOW MOUNTAIN											
Doe Springs	Nicoll Creek	21 S	25 E	17 W½	320	3,124,000	44	26,170	82	.84	.70
Allison	Soda Spring	20 S	25 E	4 W½	285	2,535,000	28	22,830	80	.90	1.34
Allison	Bixby Spring	20 S	26 E	12 S½	290	2,763,000	31	16,890	58	.61	1.13
Bald Butte	Emigrant Butte	21 S	28 E	6 E½	300	2,638,000	33	30,750	102	1.17	2.82
	Total				1195	11,060,000	136	96,640	84	.87	1.20
GRAND TOTAL	15 Plots				4669	51,183,000	295	237,470	51	.46	.91

Table 2: Estimated insect-caused mortality of ponderosa pine by areas - Ochoco National Forest and adjacent private lands.

Area and Unit	PINE TYPE				GROSS 1942 LOSS				
	Virgin Acreage	Cutover Acreage	Total Acreage	Pine Volume M.b.m. (1/1/42)	No. of Trees	Volume M.b.m.	No. Trees per Section	B.m. per Acre	Percent of Stand
MITCHELL									
Waterman	40,140	1,860	42,000	312,620	1,650	1,060	25	25	.34
Mitchell	20,900	1,100	22,000	157,540	830	580	24	26	.37
Badger	20,100	5,900	26,000	308,340	890	710	22	27	.23
Antone	25,520	6,480	32,000	209,480	990	710	20	22	.34
Total	106,660	15,340	122,000	987,980	4,360	3,060	25	25	.31
PRINEVILLE									
Trout Creek	51,000	500	51,500	606,000	1,870	1,330	23	26	.22
McKay Creek	36,800	25,700	62,500	485,830	2,600	1,560	27	25	.32
Mill Creek	33,000	1,000	34,000	300,000	985	690	19	20	.23
Total	120,800	27,200	148,000	1,391,830	5,455	3,580	24	24	.26
OCHOCO CREEK									
Marks Creek	50,990	17,510	68,500	712,700	2,900	1,970	27	29	.28
Wolf Creek	54,720	13,780	68,500	613,900	3,380	2,200	32	33	.36
Total	105,710	31,290	137,000	1,326,600	6,280	4,170	29	30	.32
SUMMIT PRAIRIE									
Big Summit	70,000		70,000	775,000	1,440	800	10	11	.10
Antler	41,500		41,500	466,000	1,870	1,350	29	33	.29
Pauline	37,500		37,500	340,000	1,430	1,030	24	28	.30
Mud Spring	18,500		18,500	174,000	720	520	25	28	.30
Sunflower	25,500		25,500	186,000	1,160	710	29	28	.38
Total	193,000		193,000	1,941,000	6,620	4,410	22	23	.23
MAURY MOUNTAIN									
Maury	54,200	800	55,000	445,800	2.720	1,690	32	31	.38
SNOW MOUNTAIN									
Doe Spring	31,000		31,000	331,400	3,420	2,050	70	65	.62
Allison	65,000		65,000	586,800	5,500	4,130	54	64	.70
Emigrant	63,000		63,000	463,700	5,700	3,700	58	59	.80
Bald Butte	57,800	2,200	60,000	445,300	5,820	3,560	63	62	.80
Total	216,800	2,200	219,000	1,827,200	20,440	13,440	60	61	.74
GRAND TOTAL	874,000	76,830	874,000	7,920,410	45,875	30,350	34	35	.39

Figure No. 1



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